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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,649	10/06/2003	Bhaskar Ramamurthy	2003P07776US01	3931

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Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

JAGAN, MIRELLYS

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,649

Applicant(s)

RAMAMURTHY ET AL.

Examiner

Mirellys Jagan

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 23-29, 33 and 40 is/are pending in the application.
- 4a) Of the above claim(s) 3-7, 12, 25, 26 and 40 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-11 and 27 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 13, 14, 23, 24 and 33 is/are rejected.
- 7) ☒ Claim(s) 28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 28 and 29 are objected to because of the following informalities:

In claim 28, it is not clear what is being referred to by “multiple firings”, since claim 1 does not claim that anything is being ‘fired’, i.e., transmitted. Also, it is not clear what is being measured in line 3.

In claim 29, it is not clear what is being referred to by “multiple firings”, since claim 1 does not claim that anything is being ‘fired’, i.e., transmitted. Also, it is not clear what is being measured in line 7.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 13, 24, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,314,380 to Seip et al [hereinafter Seip].

Seip discloses a method of determining a temperature of an ultrasound transducer, the method comprising:

receiving signals from at least one transduction element of the transducer;

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determining a temperature-dependent property (capacitance) of the transducer from the received signals; and

determining a temperature of the ultrasound transducer in response to determining the property (capacitance is used to measure transducer temperature);

wherein the determining step is performed without added devices in the transducer for temperature measurement (no temperature sensors are used) and determines if a temperature is above a predetermined threshold; and initiating a series of actions depending on the temperature (e.g., performing compensation) (see column 2, lines 24-32 and 48-60; and column 4, lines 24-67).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 2, 13, 14, 23, 24, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2004/0102703 to Behren et al [hereinafter Behren] in view of Seip.

Behren discloses a method of measuring temperature using an ultrasound transducer (14), the method comprising connecting the ultrasound transducer to an ultrasound imaging system and receiving signals from a transduction element/component of the transducer for ultrasound imaging, the connection connecting the transduction element to a receive beamformer channel (16); wherein the signals from the transducer are used for obtaining the acoustic imaging by components in the imaging system (see figure 2; .

Behren does not disclose determining the temperature of the ultrasound transducer by receiving signals from the transduction element/component of the transducer; determining a temperature-dependent property of the transducer from the received signals with components of the imaging system, the received signals being received on connections also used for the imaging signals; and determining a temperature of the ultrasound transducer in response to determining the property; wherein the determining step is performed without added devices in the transducer for temperature measurement and determines if a temperature is above a predetermined threshold; and initiating a series of actions depending on the temperature.

Seip discloses a method of determining a temperature of an ultrasound transducer, the method comprising receiving signals from at least one transduction element of the transducer; determining a temperature-dependent property (capacitance) of the transducer from the received signals; and determining a temperature of the ultrasound transducer in response to determining the property (capacitance is used to measure transducer temperature); wherein the determining

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step is performed without added devices in the transducer for temperature measurement (no temperature sensors are used) and determines if a temperature is above a predetermined threshold. The method is used for initiating a series of actions depending on the temperature to calibrate the transducer, i.e., for compensating the transducer for temperature-induced variations in sensitivity (see column 2, lines 24-32 and 48-60; and column 4, lines 24-67).

Referring to claims 1 and 14, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Behren by using the signals received from the transducer to also determine its capacitance and corresponding temperature, as taught by Seip, in order to compensate the transducer for temperature induced variations in sensitivity depending on the temperature, thereby obtaining more accurate imaging.

Referring to claims 2, 14, and 23, the signals from the transducer of Behren and Seip above are used for determining the imaging signals and the transducer temperature signals. Therefore, the transducer temperature will be determined by components of the imaging system since the imaging system is what receives the signals from the transducer, and the transducer temperature will be determined with components of the transducer and connections also used for imaging since the same transducer is used for providing the imaging signals and the transducer temperature signals.

Allowable Subject Matter

7. Claims 8-11 and 27 are allowed.

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8. Claim 28 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and amended to overcome the objections set forth in this Office action.

9. The Examiner's statement of reasons for allowance for claims 8-11, 27, and reasons for the indication of allowable subject matter for 29 are presented in the last Office action, dated 4/20/05.

10. The following is a statement of reasons for the indication of allowable subject matter for claim 28:

The prior art of record does not disclose or suggest the following in combination with the remaining limitations of the claims:

A method of determining a temperature of an ultrasound transducer, the method comprising determining the temperature dependent property from a combination of the received signals from the multiple firings (see claim 28).

Response to Arguments

11. Applicant's arguments with respect to claims 1, 2, 8-11, 13, 14, 23, 24, 27-29, and 33 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ
September 21, 2005



Mirellys Jagan
Patent Examiner
Technology Center 2800